Software Test Report for

Electronic Commerce Processing Node

Version 2.2

May 1999

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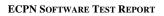UNIX is a registered trademark of The Open Group.

ECPN Software Test Report

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1.0 Scope

This Software Test Report (STR) applies to Version 2.2 of the Electronic Commerce Processing Node (ECPN). This document follows the standards set forth in *Military Standard Software Development and Documentation* (MIL-STD-498) and in the associated Data Item Description (DID) for a Software Test Report (DI-IPSC-81440), as tailored by Inter-National Research Institute (INRI).

1.1 Identification

ECPN is a Computer System Configuration Item (CSCI) of the Electronic Commerce/ Electronic Data Interchange (EC/EDI) system.

1.2 System Overview

ECPN is being developed by INRI for the Defense Information Systems Agency (DISA). The role of ECPN is to serve as a single interface between the Government and its commercial trading partners for conducting EC/EDI. ECPN must ensure interoperability, economies of scale, and compliance to standards by the Department of Defense (DoD) and Federal Program Office (PO).

The functional objectives of ECPN are to:

- Provide rigorous end-to-end accountability within the ECPN system, with no single point of failure that could result in loss or nondelivery of data

- Implement a Relational Database Management System (RDBMS) for storage of data passing through the ECPN

- Provide automated archive and retrieval mechanisms for messages and system configuration data

- Provide system performance information, including transaction statistics and communications status

1.3 Document Overview

The purpose of this document is to summarize the results of testing performed by INRI's Testing and Evaluation (T&E) Department on ECPN Version 2.2. A complete description of INRI's qualification testing procedures is provided in the *Software Test Plan for Electronic Commerce Processing Node.*

This document contains the following sections:

Scope
States the purpose of the EC/EDI system, describes the role of ECPN within EC/EDI, and states the purpose of this STR. (Section 1.0)

Referenced Documents
Lists the documents applicable to this STR. (Section 2.0)

Overview of Test Results
Provides an evaluation of the software based on test results, including any software deficiencies or limitations and any recommended corrective actions. (Section 3.0)

Detailed Test Results
Summarizes the results of each test performed, provides a chronological record of the test events, and describes any problems encountered during testing. (Section 4.0)

Test Log
Provides a complete listing of the hardware and software configurations used for testing ECPN. (Section 5.0)

Notes
Describes the abbreviations and acronyms used in this document. (Section 6.0)

2.0 Referenced Documents

The following documents are referenced in this STR. In the event of a later version of a referenced document being issued, the later version shall supersede the referenced version.

- *Data Item Description - Software Test Report (DI-IPSC-81440)*, December 1994.

- *Military Standard - Software Development and Documentation* (MIL-STD-498), December 1994.

- *Software Development Plan for Electronic Commerce Processing Node, Version 2.2,* INRI, March 1999.

- *Software Test Plan for Electronic Commerce Processing Node, Version 2.2,* INRI, April 1999.

3.0 Overview of Test Results

Qualification testing for ECPN Version 2.2 involved testing the following functional areas:

* System and Utilities Management
* Message Management
* Interface Management
* Database Management
* Translation
* Oracle® (RDBMS)
* Loading Software
* Version 2.1.0.7 to 2.2 Conversions
* Integration System Assessment Tests
* JITC 24-hour test

Integration System Assessment Tests (ISAT) were performed within 24 hours following the internal delivery of the build to the INRI T&E Department in Newport News, VA. The purpose of these tests was to determine the stability of the build before distribution to the ECPN team for further internal testing and development. Message throughput tests were conducted to determine the throughput of the ECPN software under various conditions and to verify the system's ability to handle increasing message flow with zero message loss.

3.1 Overall Assessment of the Software Tested

The INRI T&E Department conducted in-house system testing and joint, real-world verification and validation testing with the Joint Interoperability Test Center (JITC) on ECPN Version 2.2. Overall, the results were satisfactory. Each problem identified in the Version 2.2 software has been recorded as a Software Trouble Report (STR) in the Remedy Action Request System™ STR database. A summary of STR statistics is provided in Table 3-1.

Table 3-1 STR Statistics

Priority (1 = most critical)	# Open STRs	# Closed STRs
1	1	5
2	2	14
3	10	25
4	9	2
5	0	0
Total number of open STRS: 22.		

The priority of each STR was assigned according to the criteria defined in Appendix C of MIL-STD-498. A brief explanation of the priority levels is provided in Table 3-2.

Table 3-2 Priorities Used in Classifying STRs

Priority	Applies if a problem could
1	Prevent the accomplishment of an operational or mission-essential capability.
	Jeopardize the safety, security, or other requirement designated as "critical."
2	Adversely affect the accomplishment of an operational or mission-essential capability, and no work-around solution is known.
	Adversely affect technical, cost, or schedule risks to the project or to the life-cycle support of the system, and no work-around solution is known.
3	Adversely affect the accomplishment of an operational or mission-essential capability, but a work-around solution is known.
	Adversely affect technical, cost, or schedule risks to the project or to the life-cycle support of the system, but a work-around solution is known.
4	Result in user inconvenience or annoyance, but does not affect a required operational or mission-essential capability.
	Result in inconvenience or annoyance for development or support personnel, but does not prevent the accomplishment of those responsibilities.
5	Result in any other effect.

The following is a description of each open STR with priority level of 1 or 2. Each item is listed by the entry identification number in the Remedy Action Request System STR database.

Entry-Id: C2-INN000005031

Short-Description: Acknowledging all red alerts in the Non-Urgent Alert window may cause the system to lock up.

Description: The system occasionally locks up when you use the ACK ALL RED pop-up menu option in the Non-Urgent Alert window to acknowledge all red, non-urgent alerts. In addition, if you highlight a few of the alerts at a time and then select the ACK button, the Non-Urgent Alert window may lock up. At that point, if you click inside the Non-Urgent Alert window, the entire system may lock up again.

Priority: 1

Entry-Id : C2-INN000005529

Short-Description: The AlertDaemon stopped processing alerts.

Description: To test the alert mechanism, messages known to generate specific alerts were cycled through the system. Only a few alerts were processed when dozens were expected. Either the alert mechanism was working incorrectly to begin with or the AlertDaemon hung soon after the test started, allowing only a few alerts to make it through processing. After the system was rebooted, the missing alerts were generated.

Priority: 2

Entry-Id : C2-INN000007463

Short-Description: The traffic report generated by the MsgReporter utility lists the incorrect number of ISAs processed.

Description: The SPS-X2U traffic report for 14 May correctly stated that 10 files were processed. However, this report also stated that 10 ISAs were processed when the actual number was 12.

Priority: 2

3.2 Impact of Test Environment

This section has been tailored out.

3.3 Recommended Improvements

Any recommended improvements for ECPN are included in the *Software Development Plan for Electronic Commerce Processing Node.*

4.0 Detailed Test Results

ECPN Version 2.2 qualification testing consisted of the functional areas outlined in Section 3.0. For a complete description of the test objectives, see the *Software Test Plan for Electronic Commerce Processing Node.* Table 4-1 summarizes the results of each test performed by INRI's T&E Department on ECPN Version 2.2.

Table 4-1 Test Results Matrix

Name of Test	% Completed	Overall Pass/Fail	Comments
Systems and Utilities Management	100	Pass	
Message Management	100	Pass	
Interface Management	100	Pass	
Database Management	100	Pass	
Translation	100	N/A	Maps Tested: • IPC • SAACONS • SPS • PADDS
Oracle (RDBMS)	100	Pass	
Loading Software	100	Pass	
Version 2.1.0.7 to 2.2 Conversions	100	Pass	
Integrated System Assessment Test	100	Pass	
JITC 24-hour Test	100	Pass	

April 29, 1999: Began ISAT testing with ECPN Version 2.2. Initial testing was conducted for 24 hours at a data rate of 2K/hour, using a channel configuration of five FTP, one email, and one Kermit® channel. ZMODEM and CLEO® interfaces were also tested following the initial test. All comms passed this testing phase.

April 30, 1999: ISAT testing successfully completed. The ECPN Version 2.2 software was loaded on the remaining testing platforms to begin testing of the Version 2.1.0.7 to 2.2 conversion process and to initiate STR validation.

May 3, 1999: Began new functionality, STR, regression, and translation testing.

May 4, 1999: Began connectivity testing in preparation for a 24-hour test with the Joint Interoperability Test Center (JITC). Received Designated Integration Project (DIP) #1 from Engineering.

May 5, 1999: Began the 24-hour JITC test at 1000 (EST). The following configuration was used for this testing:

Channel Configuration	Data Rate	Hardware Platform
• 9 FTP gateway channels • 10 FTP VAN channels • 2 SMTP channels (1 MIME enabled)	10K/hour	HP® K410

Received DIP #2 from Engineering.

May 6, 1999: Ended the 24-hour JITC test. Due to network connectivity problems, large backlogs on all channels were observed. After confirming that large backlogs also existed on JITC's side, the decision was made to keep the channels active until 8 May. Received DIP #3 from Engineering.

May 7, 1999: Checked 24-hour JITC test and observed that all channel backlog queues were emptied. Received DIP #4 from Engineering.

May 10, 1999: Received DIP #5 from Engineering.

May 11, 1999: Loaded K410 with the ECPN 2.1.0.7 software suite. Received new comms channel and routing databases from JITC in preparation for simulation testing of ECPN 2.1.0.7 to ECPN 2.2, scheduled to begin 13 May.

May 12, 1999: Concluded new functionality testing. Completed new comms channel and routing database configurations for JITC test. Received DIP #6 from Engineering.

May 13, 1999: Processed approximately 3K messages from JITC. Archived the comms channel database, routing database, message logs, message database, system setup database, and the trading partner database. De-installed 2.1.0.7 and installed 2.2. Restored all data from 2.1.0.7 onto 2.2. Confirmed that all data was restored successfully. Received DIP #7 from Engineering.

May 14, 1999: Began 24 hr test with JITC using restored databases from 2.1.0.7. Installed DIP #7. Concluded STR and regression testing.

May 17, 1999: Received 2.2 final build tapes. Test loaded the following tapes in preparation for software delivery:

• ECPN Application Software, Version 2.2

• ECPN COE, Version 2.2

• Oracle, Version 7.3

• ECPN Translation Maps, Version 1.0.9 for ECPN Version 2.2

- Archive Viewer Segment, Version 2.0.0.1 for ECPN Version 2.2

- WebServer Segment, containing Netscape Enterprise Server™ Version 2.01 and Netscape Navigator® Version 4.04

May 24, 1999: Will deliver the ECPN Version 2.2 software to OSF/DISA for three weeks of testing.

5.0 Test Log

The following hardware and software configurations were used to test ECPN Version 2.2:

- One HP J210, one HP K410, and two HP 712 computers running ECPN Version 2.2 and the HP-UX 10.20 Operating System in the Common Desktop Environment (CDE)

- Six asynchronous modems

- Three synchronous modems

- Three CLEO SYNCcable + asynch-to-synch converters

- CLEO 3.4.1.7

- INRI Message Generator

- Kermit 501190

- Netscape Navigator 4.04

- Oracle® 7.3

- ZMODEM rx 3.42

- ZMODEM sz 3.40

- A Software Trouble Report database within the Remedy Action Request System was used to record and track problems found during ECPN testing.

6.0 Notes

The following abbreviations and acronyms appear in this document:

CSCI: Computer Software Configuration Item

DID: Data Item Description

DISA: Defense Information Systems Agency

DoD: Department of Defense

EC/EDI: Electronic Commerce/Electronic Data Interchange

ECDW: Electronic Commerce Data Warehouse

INRI: Inter-National Research Institute

JITC: Joint Interoperability Test Center

PO: Program Office

RDBMS: Relational Database Management System

STR: Software Test Report or System Trouble Report

T&E: Testing and Evaluation

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